PATENT ABSTRACTS OF JAPAN

(11)Publication number:

2001-052868

(43) Date of publication of application: 23.02.2001

(51)Int.Cl.

H05B 33/14 C09K 11/06 H05B 33/10 H05B 33/22

(21)Application number: 11-223056

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(22)Date of filing:

05.08.1999

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(54) ORGANIC ELECTROLUMINESCENT ELEMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To improve the light emitting efficiency and lifetime by including a specified quantity of the organic EL element material composed of a special compound as the center of the emission in a light emitting layer.

SOLUTION: A light emitting layer includes 0.1–20 wt.% of an element material made of a compound expressed by formula I as the emission center. In formula I, A means a substituent or non-substituent allylene group having 6–21 carbon atoms, X1–X4 mean each a separate substituent or non-substituent allylene group having 6–30 carbon atoms (X1 and X2, X3 and X4 can be connected to each other), Y1–Y4 respectively means a group expressed with formula II, (a)–(d) is an integer 0–2, and (a)+(b)+(c)+(d)>0. In formula II, R1–R4 separately means a hydrogen atom, a substituent or non-substituent alkyl group and cyano group having 1–20 carbon atoms, or triple bond of R1 and R2, R3 and R4, and Z means a substituent or non-substituent aryl group having 6–20 carbon atoms, and (n) is 0 or 1.

$$(A,+X, N-Y-N) \times (A,-(A,-))$$

$$\begin{array}{c|c}
\begin{pmatrix}
R^{1} & R^{2} \\
\vdots & I \\
C = C
\end{pmatrix}
\qquad
\begin{array}{c}
R^{2} & R^{4} \\
I & I \\
C = C
\end{array}
\qquad$$

LEGAL STATUS

[Date of request for examination]

27.02.2006

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]